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Sir James Paget Bart. Esq.

with the warm regard of his
old pupil the author.

THE HARVEIAN ORATION

THE INFLUENCE OF CHARACTER AND
RIGHT JUDGMENT IN MEDICINE

THE

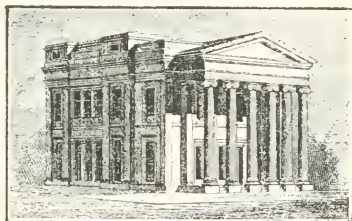
HARVEIAN ORATION

DELIVERED BEFORE THE ROYAL COLLEGE
OF PHYSICIANS, OCTOBER 18, 1898

BY

SIR DYCE DUCKWORTH, M.D., LL.D.

FELLOW AND TREASURER OF THE COLLEGE; HON. FELLOW OF
THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND;
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HON. PHYSICIAN TO H.R.H. THE PRINCE OF WALES



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TO
SIR SAMUEL WILKS, BARONET
M.D., LL.D., F.R.S.
PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS
PHYSICIAN EXTRAORDINARY TO H.M. THE QUEEN
WHO ASSIGNED TO ME
THE HONOURABLE OFFICE OF HARVEIAN ORATOR
I INSCRIBE
THIS HUMBLE FULFILMENT OF IT WITH
SENTIMENTS OF SINCERE AND
GRATEFUL REGARD

PREFACE

I SHOULD fail in my duty if I did not express my indebtedness for much of the knowledge I have gained respecting Harvey's career and achievements, as well as of his character, to Doctor Robert Willis' "Works of Harvey," and to Doctor Munk, our esteemed and learned Harveian Librarian, for his accounts of Harvey as published in the "Roll of the Royal College of Physicians," and the "Gold-Headed Cane." I am also under much obligation to the latter for information respecting the several benefactors whom I have selected for commemoration. The lucid and interesting "Life of Harvey" in Mr. Fisher Unwin's series of the "Masters of Medicine," written by my colleague, Mr. d'Arcy Power, has also been of much service to me. I would add that I have deemed it a great privilege to be called to study the character and life work of Harvey, for to do this constitutes little less than a liberal education.

Although the long series of Orations delivered in the College, and the expositions of Harvey's works, with their alleged refutations, now constitute an extensive literature, I think I have discovered in the course of this effort, what I little expected to find when I began it, that the theme of Harvey, treated from all possible points of view, is well nigh inexhaustible.

SIR SAMUEL WILKS (*President of this College*),

FELLOWS AND GENTLEMEN,—

The honourable task which is imposed upon me today carries with it, year by year, a heavier burden and an increased responsibility.

I suppose that not fewer than one hundred and eighty Harveian Orators have taken their places in this venerable College to carry out the project of that great man whose character and work we so appropriately commemorate on this Festival of “the beloved Physician.”

When we reflect that the Orators have in nearly every instance come fresh to the task, have brought all their learning and literary skill to bear upon it, have, not seldom, in the past, clothed it in the purest Latin or the most classical English, and have no less enriched both the Science and Art of Medicine by many of these efforts, the latest of that band may

well invoke today some of the divine ἐνθουσιασμός to descend upon him as he sets out to follow the well-worn road which lies before him.

For myself, I may say that I yield to none in the interest which this duty has for me. As Physician to the great Hospital which Harvey served,* as his successor in this College, *longo intervallo*, in the capacities of its Treasurer† and Lumleian Lecturer,‡ and as one of the eight Fellows, of whom only three now survive, who on this day fifteen years ago had the privilege of bearing his body, “lapt in lead,” to its final resting-place on the occasion of the translation of his remains at Hempstead, I find myself in particular sympathy with the object and circumstance of our meeting today.

Inasmuch as Harvey himself conceived the idea of this Oration,§ and definitely laid down the specific objects of it, I take it to be the plain duty of the Orator to obey his directions as loyally as possible, and in doing so I hope to find suggestive lines of thought for interesting and fruitful comment.

It is therefore my duty first, to commemorate some of the greatest benefactors of this College; secondly, to incite our Fellows and Members to search out and

* 1608-? 1633.

† 1628-1629.

‡ 1615-1656.

§ 1656.

study the secrets of Nature ; and thirdly, to urge a spirit of gracious courtesy and kindliness amongst ourselves.

Harvey's primary consideration in this matter was, without doubt, to maintain the position and dignity of his beloved College, to foster its usefulness, and to keep it well abreast of the knowledge and learning of the day, so that by its influence it might impart a high and beneficial tone to the whole commonwealth of Medicine in England. It was a high ideal, but not too high for the best spirits in this College ; and that, Sir, and no less, I will venture to say, is our ideal of its position today, a day in which we bear witness to many and radical changes of circumstance indeed, but in which, notwithstanding, we are still full of energy and good purpose, full of strong will and intention to hold that position, and, if possible, to add to it.

When Harvey enjoined upon the Orator the duty of commemorating the chief benefactors of the College, the task was comparatively simple, but happily for us, thanks to the many benefits our Fellows have conferred upon our Commonalty, it would now be little less than wearisome to enumerate them, and allude even briefly to their varied benefactions. Few will demur to the statement that Harvey himself has been our greatest benefactor, whether by reason of the immortal lustre

he shed upon us by his epoch-making discovery and teaching, or in respect of his substantial gifts and the bequest to us of his patrimonial estate. And no less, I would add, has been the boon he conferred upon this College for all time by the legacy of his personal character and qualities, qualities which none of his successors here can afford to forget or neglect.

Some of our greatest benefactors have not been, so far as I can learn, recently commemorated by our Orators. I will, therefore, claim your indulgence while I praise some of the good men to whom we are indebted for many of our privileges and opportunities of usefulness.

Foremost, I place THOMAS LINACRE, our Founder and first President in 1518. Let it be remembered that he designed this Corporation as well for the benefit of the public as of the Profession. His wisdom, scholarship, and moral excellence rendered him, as has been said, "the ornament of his age." The College meetings were held in his private house,* which he made over to the Physicians, and this was our first building, subsequently enlarged and used till 1614. The Lumleian Lectures were first delivered there.

As our learned Orator two years ago, showed, Linacre may be regarded as "the intellectual grandfather of

* The Stone House, No. 5, Knightrider Street.

Harvey," and in virtue of his translations of Aristotle and Galen, Doctor Payne placed him in the front rank of the medical Humanists, pointing out, further, as we well remember, how out of these scholarly efforts grew the scientific movement which led to a truly fertile study of biology.

JOHN CAIUS, nine times elected President, must ever be revered here for his beneficent efforts. He erected a monument in St. Paul's Cathedral to Linacre, whom he is held to have taken as his model in life. Caius began our Volumes of Annals, and thus set an example to all succeeding Registrars, which has certainly been well followed to the present time. He instituted those "ensigns of honour" by which our President is distinguished amongst us. He was the first to introduce and teach practical anatomy in England. His scholarship and literary works, his method and precision rendered him one of the most noteworthy men our Profession has ever had in any country. We recall his efforts and munificence in refounding Gonville Hall at Cambridge, a College which has sent to us here, and still continues to send, some of our most distinguished Fellows and Members. Harvey's lines of thought and study were probably, as Doctor Payne suggests, much projected under the posthumous influence of the second founder of his College.

I merely mention the names of CALDWELL and LORD LUMLEY, the founders in 1581 of our Lumleian Lectures which Harvey held for forty-one years, and in which he expounded his original investigations on the circulation of the blood, and refer next to WILLIAM GILBERT, sometime Treasurer, and President in 1600. Gilbert was the father of experimental philosophy in England. His famous work "*De Magnete*" first directed the mind of Galileo towards this and kindred subjects. He bequeathed to the College his library, globes, and instruments, most of which perished in the great fire of 1666, only one hundred and forty volumes of his books being rescued.

We commemorate THEODORE GOULSTON as the founder, in 1632, of the Lectures bearing his name, which he designed to be delivered in each year by one of the four youngest Doctors of the College. He was excellent both as a Physician and a scholar, and published translations from Aristotle and Galen.

BALDWIN HAMEY, Junior, ranks with Harvey amongst our greatest benefactors. He redeemed at his own cost the first College building in Amen Corner from a possible confiscation to the spoliators of Church property in 1651, contributed largely to the fund for rebuilding the College after the great fire, and wainscoted the Coenaculum with Spanish oak, some of

which now lines the walls of our Censors' room. In 1672, he made over for ever his Essex property of Ashlyns, an estate of four hundred acres, for its immediate benefit, including, by the way, an equivalent sum to that appointed by Harvey as the *honorarium* of the Harveian Orator. Hamey's bust executed in 1684, and his portrait both look down upon us today from these walls.

The agricultural depression of recent years has unfortunately affected the property so nobly bequeathed to us, but we still count it amongst our best certain sources of income.

We honour the memory of FRANCIS GLISSON, sometime President.* Working on the lines of research laid down by Harvey, Glisson enlarged the knowledge of anatomy and pathology, and of the fruits of his studies we avail ourselves in daily practice. In thus wresting veritable secrets from Nature,† he was truly a

* 1667-9.

† "I am glad to be able today for the second time to credit the English nation with the service of having made the first attempts to define the character of life. It was FRANCIS GLISSON, who following expressly in the footsteps of Paracelsus, investigated the *principium vite*. If he could not elucidate the nature of life, he at least recognised its main characteristic. This is what he was the first to describe as 'irritability,' the property on which the energy of living matter depends."—Prof. Virchow. Huxley Lecture, delivered in London, 1898.

benefactor to this College, and in respect of his work on the subject of Rickets, still known as the English disease, a benefactor to his countrymen.

We may not omit to recall to memory the benefactions of the MARQUESS OF DORCHESTER. A diligent and widely read student in the learning of his day, he was urged by Harvey and others to join this College in 1656. Two years later, he was admitted to the Fellowship. Sympathising with the College in the loss of its library, and to show his respect for the Profession, he bequeathed a collection of books of the value of four thousand pounds, and contributed one hundred pounds towards the library. What a splendid example was this, and how little has it been followed in the last two centuries !

It is a fact to note here and now, for while we have had in recent times some noble instances of beneficence for the institution of lectureships and prizes, we have had hardly any gifts or bequests in the form of endowments for the College itself, endowments which I, as your Treasurer, can well certify are, more than is commonly believed, necessary to enable us to maintain our position, our fabric, and our library. Those of us who are engaged in teaching in this metropolis have to acknowledge that in these days the vital interests of higher learning make little appeal to the sentiments

or generosity either of wealthy peers or commoners whose interests lie largely in London ; while we take note of the fact that learned institutions in the provincial cities, void as yet of traditions, have no difficulty in arousing and stimulating such qualities in the hearts of their citizens, and enlisting from them noble gifts and benefactions.

This is a Royal, but unendowed, College, yet it is constantly appealed to for advice by the several Offices of the State which thus receive gratuitous assistance for the benefit of the public.

I venture to think that a Corporation such as this well commends itself to the consideration and substantial liberality of persons of wealth and patriotic intelligence resident in London. We might at least look for one such donor as Lord Dorchester in each century, and the College will welcome such benefactors, and not fail to commemorate their good deeds in the days to come, thus securing for them an enviable immortality.

Let us praise WILLIAM CROONE, Fellow of Emmanuel College, Cambridge, a Censor of this College in 1679, and founder of the Lectureship which bears his name. With his memory we associate that of his widow, LADY SADLIER, who loyally carried out his wishes in providing a fund for the endowment of the Lectures.

I turn now to hold up in honour some others of our distinguished Fellows who by their attainments and splendid personal characters have conferred undying benefits upon our College, and through it upon the Profession of Physic.

We are perhaps too much disposed to commemorate the scientific achievements of our great men, but let us not be unmindful of their characters. We know that genius is not always coincident with the highest moral or spiritual perfection, but when both these qualities are graciously combined in anyone, we feel that we are in the presence of a truly great man, of one who becomes a personage, and a power for good in his day and generation. In such a Profession as ours we can never afford to lose sight of the preponderating influence of character in all who join our ranks, and have to minister to every grade of our common humanity.

The training which enabled Harvey to be the man we know him to have been, the scholarly, wise, even-minded, and unworldly man, was that which best begets men of his mould.

No mere technical or narrow training could by itself have produced him. His mind was expanded by wide reading, by travel, by knowledge of men and manners, by contact with the best spirits of his age, and by honest service to both rich and poor. His

character, too, was formed by deep religious sentiment, by a pure faith, and by gentle sympathy with his fellow-men. He probably owed much, as many great men do, to the influence of his mother, for we know that she "was reverenced of her children."

In Harvey we have indeed a splendid model of the ideal Physician, for not only have we to cultivate wide learning for its own sake, and its unquestionable influence upon us, but we have to see to it, if anything more assiduously, that we be men of the highest character. If the factor of high character was a great one in Harvey, and a gracious achievement in the seventeenth century, can it be doubted that it is a less imperative quality for us in the declining years of the nineteenth? I almost fear that in this restless age so prolific in novel developments, there have opened out before us, more than is easy to steer clear of, many new channels wherein our moral integrity may be severely tried; and we may not seldom be tempted by a thoughtless and credulous public to deviate into courses which a strictly disciplined and finely tempered nature must ever recoil from. Yes, character must always be the mainstay and regulator of our conduct both amongst ourselves, and towards the public, whose servants we are. This requirement

should receive emphatic recognition in every commemoration of Harvey.

We may well learn from the examples of Harvey, and from others which I shall venture to present to you, what manner of men Physicians should strive to be.

If time permitted me, I might say much in praise of ARBUTHNOT, and MEAD, of HALE, who left us five hundred pounds for our Library, and of FREIND; but I pause to commemorate WILLIAM HEBERDEN, author of the famous "Commentaries,"* who by his learning, wisdom, and high character left us a legacy of which the College may be proud. We may understand what manner of man he was if we realise what Doctor Mac-michael wrote of him :—"From his early youth he had entertained a deep sense of religion, a consummate love of virtue, an ardent thirst for knowledge, and an earnest desire to promote the happiness and welfare of all mankind. By these qualities, accompanied with great sweetness of manners, he acquired the love and esteem of all good men, in a degree which perhaps very few have experienced."

SIR GEORGE BAKER, President for ten years, was preeminent as a scholar and practical Physician.

* "Commentarii de Morborum Historia et Curatione"—a posthumous work. 1802.

His method of research on the nature of Devonshire Colic has truly been pronounced to be a model for the conduct of scientific medical work.

Greatly appreciated and honoured in his time, his memory remains with us as a precious heirloom.

I speak next of MATTHEW BAILLIE, who delivered the Harveian Oration exactly a century ago, but, so far as is known, did not publish it. Baillie was at that time thirty-seven years of age, and engaged in teaching Anatomy. We may perhaps assume that some anatomical exposition formed the subject of his Oration, for, though he had then been in practice for twelve years, he did not begin to record his mature clinical experiences for twenty-one years afterwards, hoping to secure the leisure, which he never did, to elaborate this work. We may greatly regret this inability, for his clinical records were admirable and in advance of their time. Baillie's energies were therefore devoted to his patients when his powers and intellect were at their best, and, as is not seldom the case when Physicians of eminence are eagerly sought by numerous patients, but little time and strength were left to pursue fresh study, or publish newly acquired experience. Of such men little remains to tell of their special skill, or of the qualities they exhibited in practice. Baillie worked seventeen hours a day. His benefactions to

this College were great. He gave, in his lifetime, his private collection of morbid specimens, now in our Museum. He bequeathed at his death, in 1823, a legacy of three hundred pounds with all his medical books, and the copper plates of his work on "Morbid Anatomy." This book was largely the product of his industry in his uncle William Hunter's museum, and is of especial value because in his later editions of it he described the clinical features of the cases which furnished the morbid specimens. He was thus one of the pioneers of the modern school of Physicians, trained, on the lines laid down by Harvey, to prosecute research by observation and experiment. I conceive that Baillie may be regarded as the English Morgagni of his time, but he was even more lucid and precise than his great predecessor.*

He left on record a very pregnant sentence which we shall do well to remember, for we need its wisdom now as much as in the days when it was written.† "I am persuaded," he remarks, "that the most suc-

* Morgagni was born twenty-five years after Harvey's death. Baillie was born seventy-nine years after Morgagni.

† "Lectures and Observations on Medicine," p. 161. London, 1825. (A posthumous work, of which only 150 copies were printed for private circulation in accordance with the directions in Doctor Baillie's will.)

cessful treatment of patients will depend upon the exertion of sagacity,* or good common sense,† guided by a competent professional knowledge; and not by following strictly the rules of practice laid down in books even by men of the greatest talents and experience.” Baillie acknowledged that he owed a good deal to Doctor David Pitcairn, of St. Bartholomew’s Hospital, who was his firm friend. He learned from him that rheumatism was frequently the cause of disease of the heart, a fact that had not been previously recognised; also, that ague was often not amenable to the influence of bark unless a course of calomel preceded it. An example of Baillie’s sagacity is furnished by his conjecture that Hydatids were animals, an opinion not held at that time.

To tell only of Baillie’s scientific work, however, is to disclose but a part of his illustrious career. As Sir Henry Hallford said of him in announcing his bequests to the College, “justice cannot be done to his medical character unless that important feature in it which

* ἀγίνοια (Aristotle).

† “Common Sense—(a faculty of more use to the practical physician than all the science of a Newton,)—and approved by the experience of every age.” “A proper decision as to treatment requires experience, tact, and long-headedness.”—John Goodsir, *Anatomical Memoirs*. W. Turner, M.B., with Biography by H. Lonsdale, M.D., p. 77. Edinburgh: 1868.

appeared in every part of his conduct and demeanour—his religious principle—be distinctly stated and recognised." As in Harvey, so in Baillie: "ample converse with one of the most wonderful works of the Creator—the formation of man—inspired in him an admiration of the Supreme Being which nothing could exceed." He had indeed "looked through Nature up to Nature's God." His moral loftiness and his splendid character secured for him the deepest regard and affection of his professional brethren. We cannot neglect to commemorate and praise the man of whom so much could be said by a contemporary who knew him well. May Baillie's spirit and influence ever prevail in this College!

It would be a pleasant task to illustrate further the value and charm of high character when blended with learning and skill in our Profession, by the splendid examples of HENRY HALFORD, PETER MERE LATHAM, THOMAS WATSON, and GEORGE BURROWS, who have lived and laboured in our own day, shed lustre on this college, and earned places amongst our worthiest benefactors. But I must desist. By Harvey's direction I exhort you, and I exhort myself, to imitate such men as we have praised and commemorated; and in striving to this end, we shall find help and inspiration if we look back and discover what manner

of man the English Physician was in the earlier part of this century. He was then regarded as combining in his person—"not only the qualifications necessary for the successful practice of physic, but those which give dignity to his professional and respectability to his private character. He was distinguished by large attainments as a scholar; by sound religious principles as a Christian; by practical worth and virtue as a good member of society, and by polished manners as a well bred gentleman."* I trust that I may be pardoned for dwelling at some length on this part of Harvey's charge, since, to the best of my belief, it has not received prominent notice from my predecessors during the last thirty years.

I have next to repeat to you today our great master's injunction "to search and study out the secrets of Nature by way of experiment." It may truly be said that there is no lack of research in our time into the secrets of Nature. On the contrary, we are presented with a plethora of products emanating from our Laboratories as the result of original inquiries; and our difficulty now is to discover their

* Obituary notice of George Williams, M.D., Vice-President of Corp. Christi Coll., Oxford, and Prof. of Botany; Fellow of this College.—*Gentleman's Magazine*, March 1834.

true value and to find a fitting employment for the knowledge thus brought to light. The younger men amongst us are naturally attracted both to fresh research, and the application of its fruits in clinical work. The elders, by their longer experience of humanity, both in its wellbeing and its woes, are less eager to engage in experimental methods, and prefer to practise the hard-earned principles which have gradually commended themselves to them.* Do what we will, however, truths either new or in fresh aspects move steadily onwards, and come in the fulness of time to occupy the field.

For our purposes as Physicians, the secrets of Nature disclosed in the Laboratory require to be brought to the touchstone of clinical experiment and observation. If they be veritable facts, they serve at once to advance our Art by enlarging our powers to cope with diseased conditions; while, if the results of Laboratory experiments have been incompletely wrested from Nature they will fail to aid us, though, perchance, they may prove suggestive. Of some, I think, it may be said that they fail *primo*

* "No man who had attained to the age of forty years was found to adopt Harvey's doctrine of the circulation: it had to win its way under the safeguard . . . of the youthful and unprejudiced spirits of the age."—*Life of Harvey*, p. xlvii. R. Willis.

visu to commend themselves to our common sense.

I will support this assertion by a reference to some recent Laboratory researches undertaken in America. With a view to determine the influence of alcohol in morbid conditions, certain rabbits were inoculated with streptococci and other microbes, and then kept daily in a state of acute intoxication by alcohol. These animals showed the effects of the inoculation earlier and more severely than rabbits that were similarly infected, but not alcoholised. It has been proved that alcohol in poisonous doses exerts a negative chemiotaxis in the tissues, and it is also well known that a prolonged abuse of it by man causes widespread degenerations.

On the strength of these and similar phenomena, we are gravely warned from the Laboratory that it must be disastrous to employ even moderate doses of alcohol in inflammatory conditions of disease in the human subject. I trust that we may keep our minds clear on this matter, and pray daily for a right judgment in all things. The Laboratory operator may tell us that alcoholic stimulants are bad for this or that disease, but we shall maintain that they are sometimes very good for the patient. The practitioner who could allow the teaching of such experiments as I have

quoted to influence his bedside treatment of patients suffering from acute diseases would, in my opinion, possess neither clinical instinct nor knowledge.

Yes, clinical instinct or intuition, for I maintain that none can be skilful in Medicine without it. Call it sagacity, common sense, or what you will, the Physician must possess it, and it must direct his methods whether they proceed from the Laboratory or elsewhere.

The present danger in this matter, and it is a real one, is that the modern spirit of research tends in some degree to withdraw our attention from facts and principles which have been well established for us by the clinical acumen of past masters of our Art, and which, in the best interests of our patients, we can ill afford to lose. New methods thus come to displace old ones, and not always with benefit. While keeping open minds, we must not dispense with the caution that the new is not necessarily the true. I have ventured to utter this note of warning, but I would not for one moment be regarded as indifferent to the unquestioned triumphs of modern Laboratory research in all directions. While Harvey clearly intended the Orator of each year to be in the first part of his discourse "*laudator temporis acti*," he was the last man to plant himself down immovably, and

rest content as though the goal of research had been reached. Knowing too well in his own day the evil and tyranny of stereotyped traditions and beliefs,* and shrewdly foreseeing the necessity of perpetual progress in Medicine, he definitely charged us to encourage fresh research; and therefore I will

* "The facts cognizable by the senses wait upon no opinions. The works of Nature bow to no antiquity; for indeed there is nothing either more ancient or of higher authority than Nature."

"We are to strive after personal experience, not to rely on the experience of others. . . . Nature is herself to be addressed, the paths she shows are to be boldly trodden, for thus, and whilst we consult our proper senses, from inferior advancing to superior levels, shall we penetrate at length into the heart of her mystery."

"True philosophers, who are only eager for truth and knowledge, never regard themselves as already so thoroughly informed, but that they welcome further information from whomsoever and whence-soever it may come; nor are they so narrow minded as to imagine any of the arts and sciences transmitted to us by the ancients, in such a state of forwardness and completeness, that nothing is left for the ingenuity and industry of others."—*Letter to Doctor Argent and the Fellows of the College.*

"Nature—the word that stands for the baffling mysteries of the universe. Steadily, unflinchingly, we strive to pierce the inmost heart of Nature, from what she is to reconstruct what she has been, and to prophesy what she yet shall be. Veil after veil we have lifted, and her face grows more beautiful, august, and wonderful with every barrier that is withdrawn."—*Presidential Address, Brit. Assoc. Meeting, Bristol, 1898.* Sir William Crookes.

"Nature is the art of God."—Sir Thomas Browne. 1635.

express my entire agreement with the words used by one of my esteemed predecessors and former colleagues eight years ago in his Oration :—"it will be an evil day for Medicine and Physiology, if ever the results of Laboratory work are held to have no bearing upon medical practice."* So long as we prudently avail ourselves of these results, we shall not fail to add to the credit and beneficence of our Art.

The so-called "practical" man is the one likely to avail himself of immature Laboratory researches. As Professor Kanthack remarks :—"Paracelsus is not yet dead. He snatches incomplete researches out of the Laboratories, and applies them in the treatment of diseases, the pathology of which he does not understand; and his influence makes itself felt in Laboratories to the discredit of Medicine."†

What we greatly need now in England are Research Laboratories attached to our Hospital Wards and *post mortem* Theatres; and no less, a select staff of fully trained investigators available for service throughout the Empire. It is surely humiliating that we permit researches to be made for our benefit in various parts

* Doctor James Andrew.

† "The Science and Art of Medicine." Address to the Abernethian Society of St. Barth. Hosp. *St. Barth. Hosp. Journal*, Aug. 1898.

of our dominions by foreigners, while many of our countrymen and countrywomen, owing to ignorance and mawkish sentimentality, are doing their best to debar the training of such men in England.

The day in which it has been affirmed that there is a gulf fixed between physical and spiritual science is, I think and hope, fast drawing to its close. The temper of mind which leads, however honestly, to such a belief was not that of Harvey, nor indeed has it been that of the majority of the Physicians of this College whom we reckon amongst the most exemplary men of the past. I will venture to say, further, that it is not the aspect in which such matters are viewed here and now. As Willis observes, Harvey "seized every opportunity of giving utterance to his sense of the immediate agency of the Divine in Nature."*

* "Nempe agnoscimus Deum, Creatorem summum atque omnipotentem, in cunctorum animalium fabrica ubique presentem esse, et in operibus suis quasi digito monstrari."—*De Gen. Animalium*, Exerc. liv.

"Harvey's education and his epoch made him, as a believer, reverential: he was by nature modest, and being a sound observer, he was neither superstitious nor illogical. . . . Far above all he was taught by Nature."—*Harveian Oration*, 1865. Sir Henry Acland.

"Physical and spiritual science seem to the world to be distinct.

He had no fear either of the processes or the results of research. We can imagine his approval of the following sentences in the *Religio Medici* which he must have read :—"There is no danger to profound these mysteries, no *sanctum sanctorum* in philosophy. The world was made to be inhabited by beasts, but studied and contemplated by man ; 'tis the debt of our reason we owe unto God, and the homage we pay for not being beasts. . . . Those highly magnify Him, whose judicious inquiry into His acts, and deliberate research into His creatures, return the duty of a devout and learned admiration. Therefore :

Search while thou wilt ; and let thy reason go,
To ransom truth, e'en to the abyss below ;
Rally the scattered causes ; and that line
Which Nature twists be able to untwine.
It is thy Maker's will ; for unto none
But unto reason can He e'er be known. . . ."

One sight of God as we shall one day see Him will show us that they are indissolubly and eternally the same."—Charles Kingsley.

"Science is great, but she is not the greatest. She is an instrument and not a power—beneficent or deadly, according as she is wielded by the hand of virtue or vice. But her lawful mistress, the only one which can use her aright, the only one under whom she can grow and prosper, and prove her divine descent, is Virtue, the likeness of Almighty God."—*Roman and Teuton*. Charles Kingsley. 1860.

I will now refer to some researches which are of especial interest to us at the present time. They relate to bacteriology.

Starting with the conception of bacillary invasion of the body,* and the mischief thereby engendered, we naturally seek to destroy the germs themselves, and to undo their evil effects. Preventive Medicine has for its aim the provision for us of an environment destitute of noxious germs, and is now achieving brilliant success in its progress; but in Practical Medicine the Physician has, as yet, to be satisfied with the endeavour to combat the ill effects of such germs as have gained entry to the body, by restoring to the natural standard that impaired vitality of the system which has enabled the bacteria to gain the upper hand. In the gravest cases, where bacillary invasion is widespread and rampant, as in the exanthemata, continued fevers, or pyæmia, we are in the presence of a dosage of toxins, so overwhelming that it cannot be met by any adequate systemic resistance. We have, as yet, but few antitoxins available in

* Athanasius Kircher, a Jesuit, wrote in 1659, two years after Harvey's death, that "the propagators of the Plague are little worms, so small, fine, and delicate that they cannot be recognised by the senses." It was left for a Japanese bacteriologist, Kitasato, to discover in 1894 the bacillus specific to Plague.

practice, though we look with confidence in the future to the fruitful labours of our Laboratories for more of such agents.

Our present inability then, leads us to consider the solitary factor on which we have to depend, and which is in each case to determine the issue. We term it the bodily, or tissue, resistance. What is the full significance of it? The varying vulnerability of the individual is the factor before us in each patient, and we have to gauge this as nicely as we can. A toxic dosage which is certainly lethal for some is not so for others. The soil, so to say, is, or has somehow become, favourable for the full development of the toxin in the one case, while in the other, a degree of immunity exists which proves adequate to overcome the noxious dose, the soil being unfavourable for its full development. This is a matter of the constitution, a personal peculiarity or proclivity, either inherited or acquired. We call it the personal factor in each case, and therefore a Physician never speaks of treating *diseases*, but of treating *patients*.*

* This is no new idea, although it is necessary even now to emphasise it. It was clearly in the mind of Aristotle, as may be gathered from the following passage:—

Φαίνεται μὲν γὰρ οὐδὲ τὴν ὑγίειαν οὕτως ἐπισκοπεῖν ὁ ἰατρός, ἀλλὰ τὴν ἀνθρώπου, μᾶλλον δ' ἴσως τὴν τοῦδε· καθ' ἕκαστον γὰρ ἰατρένει·

Nicomachean Ethics, I. 6, xvi.

these personal factors is not large and, as yet, not very accurate.

Theoretically, we might conceive that the highest condition of health, with full integrity of the vital organs, should provide the fullest measure of immunity against all forms of bacillary toxin, whereas in practice we know that in the case of many of them, as in that of smallpox, cholera, or diphtheria, such immunity is of little or no avail, and that death may result from an overpowering multiplication of the specific peccant matter. Happily, we can now control the invasion of smallpox, and are able materially to counteract the diphtheritic virus by an antitoxin. And so with some other diseases.

Let us take the case of persons of that habit of body in which tuberculosis is apt to occur. We must regard them as presenting in some of their textures an appropriate *nidus* for the cultivation of the specific bacilli. Could we shield them from all possible contact with these germs, we might fairly anticipate for them an average longevity; though, as I shall presently show, their textures constitute a bad soil for the inroad of most diseases. We know that under certain depressing conditions whether of climatic or other environment, the tissues even of fairly healthy bodies lose their resistance, and become a prey to

the activity of various bacillary parasites, affording examples of sundry specific disorders. The problem before us in all such cases is to determine, if we can, the ratio of the force of resistance to that of the infection. Too often, we have but to study the course of the disease in order to decide this point, and while treating the patient as we watch the contest,* we sometimes discover evidence of inhibiting factors which prove adequate to check the mischief arising from parasitic invasion. We have an example of this in the case of a proclivity to gout which tends markedly to check tuberculous invasion, and when this occurs to

* A passage in Harvey's Anatomical Exercise (lvii.) on the Generation of Animals, affords a remarkable prevision on his part respecting the reaction of the bodily tissues to the intrusion of irritants. Referring to the effect of spider poison when introduced by a prick under the skin, he wrote:—"Erat tamen in cute quod discerneret, quippe eodem loco, ubi venenata punctio contigerat, subito sese in tuberculum contraxit, induitque mox ruborem, calorem, atque inflammationem, tanquam ad *pugnam* et nocentis mali expugnationem se roboraret et accingeret." What have we here but a forecast of the modern researches of Metschnikoff and others upon the action of phagocytes in inflammatory foci? The idea of a contest in the involved textures was, I think, singularly prophetic of the histological discoveries to be made some 230 years later, and displays the intuition of Harvey in his study and interpretation of the secrets of Nature, without any other aid than his simple vision.

protract its course.* There is reason to believe that some constitutions are practically invulnerable against the infections of tuberculosis, rheumatism, marsh-poison, and others. We need to study carefully the causes of such immunity, since, as Harvey urged, many problems are to be solved by the investigations of exceptional cases.†

The subject of Scrofula is just now engaging the attention of some pathologists, and I propose to consider briefly some facts in relation to this condition. Koch's great discovery is supposed by many to have explained its pathogeny, and to have laid to rest the old disputes respecting the connection of struma and tuberculosis. In my opinion, this matter is by no means disposed of solely on a bacteriological basis. The presence of a few tubercle bacilli in the lympharia may be a factor in a given case, but their presence

* That this is not due to the fact that tuberculosis is a disease mainly of youth, while gout occurs chiefly in middle or later life, as has been alleged, is, I think, proved by the practical immunity of the children of gouty inheritance from strumous manifestations and tuberculosis. Senile struma is certainly recognised, and blended conditions of gout and struma may be met with in advanced life.

† He wrote to Vlackveld of Haarlem, within a few weeks of his death :—"There is no better way to advance the proper practice of medicine, than to give our minds to the discovery of the usual law of nature by the careful investigation of rarer forms of disease."

does not explain all that we recognise as constituting the obvious condition of struma. Our predecessors took a wider view of the matter, and we must still hold by some of their conceptions. The old belief was that scrofula—that is, an obvious manifestation of tuberculous disease—was a condition capable of transmission from parent to child. The indications of this state were then rightly determined, though now we interpret them differently, and were recognised by the ill-developed alar thorax, long, clumsy limbs, downy forehead and back, precocious intellect, and various other characteristics. But in 1846, Doctor Robert. M. Glover pointed out that a careful distinction should be made between the predisposing constitution and the actual processes of strumous disease, between the *ens in potentia* and the *ens in actu*, and that, thus, such subjects widely diverged from health before tuberculous deposits took place.* This brings us to our view of the matter today, since we now believe that the heredity of scrofula means no more, but no less, than an inherited feebleness of bodily textures in which tuberculous bacilli are apt to thrive if they gain entrance at any point; a vulnerability of tissues affording little or no resistance to such an invasion.

* "Fothergillian Prize Essay," p. 141. London, 1846.

This diathetic condition, or tissue-proclivity, is what is transmitted, and it may be the outcome of long antecedent inheritance from an ancestry in which tuberculosis has from time to time manifested itself. We know that direct transmission of bacillary tuberculosis is possible, but that it is of the extremest rarity; also, that direct transmission of tubercle from patient to patient is possible, but very difficult of absolute proof. There is reason, too, for the belief that infection may occasionally spread from the impregnated air of certain dwelling-houses, leading to repeated cases amongst the occupants, provided they present the necessary degree of susceptibility.*

* Harvey regarded phthisis as a contagious disease, and placed it with leprosy, lues venerea, and plague as "creeping through the ranks of mortal men, and by mere extrinsic contact exciting disease similar to itself in other bodies." He did not believe that actual contact was necessary, since a mere halitus or miasm sufficed to cause an univocal like itself.—"De Gen. Animalium," Exerc. xlix. Cf. also Art. "Tuberculosis," *Quart. Med. Journal*, April 1896. By Doctor Norman Moore.

It has been surmised by Mr. Archdall Reid (quoted in Doctor Arthur Ransome's Essay, awarded the Parkes-Weber gold medal of this College in 1897) that in countries where tuberculosis has existed for many generations, a certain tolerance has been secured whereby resistance to the microbe has been acquired, and that the inhabitants escape the full influence of the disease. Native races of other countries have possibly, he thinks, not yet acquired this degree of immunity.

Our present point of view could never have been reached till we were made familiar with the infecting parasite which, as we believe, alone brings us in face of the *ens in actu*. Eighty-eight years ago, Matthew Baillie, by naked eye observation alone, fully recognised the fact that the caseous matter in the lympharia and in the lungs was identical, and now we have the explanation of it. It has been suggested that the condition of struma is dependent on a latent state of tuberculosis. This idea must be discarded if we regard all tuberculous activity as due to bacillary influence. Yet another theory, recently advanced, deserves consideration, as it opens up a large question in bacteriology. It is urged that the condition of struma may be due to the presence in the body of tubercle bacilli in some early or preexisting stage of development, which lead to other manifestations than those recognisable as tuberculosis. It is true that we have as yet but little knowledge respecting the exact biological position of the bacillus as commonly met with. In this condition it may possibly, as Woodhead and others suggest, merely represent one phase in the life history of a higher fungus, allied to the actinomyces, which in certain stages of its existence leads a saprophytic life, its parasitic and pathogenetic phases being merely temporary. Without following up this suggestive

hypothesis, some support is added to the idea of latency, or of an unrecognised, spore-like (resting stage) condition of the tubercle bacillus, by the fact that cases of tuberculous outbreak sometimes supervene when caseous structures, or their vicinity, suffer from injury and a consequent lowered vitality. This occurrence points to the general dissemination of microbes from some distant focus of long-past or forgotten disease, a development and migration, dependent, possibly, on some law of which we are at present ignorant. We have instances illustrating it in tuberculous meningitis following injuries to the head, in acute pulmonary tuberculosis following injuries to the testis, or to joints, once the site of tuberculosis, or supervening on operations for tuberculous anal fistula, while in cases of Addison's disease (adrenal tuberculosis) injuries to the spinal column are sometimes suspected as the primary exciting cause.*

In many of the enlarged lympharia of strumous persons neither tubercle bacilli nor caseous matter can be detected. This fact suggests that the tendency to react vigorously to irritants other than tuberculous is a specific factor and quality of the lymphatic system in strumous individuals. These swollen lympharia

* Doctor Parkes Weber has recently directed attention to some cases of this kind.

doubtless present a good soil wherein tubercle bacilli may lodge and induce caseation, should they gain entry. This peculiarity of the lymphatic system in the strumous subject justifies us, in my opinion, in retaining in the old sense the term strumous inflammation without affixing to it, as we are now prone to do, the modern idea of tuberculosis. A strumous habit of body has, doubtless, a marked influence in modifying other morbid conditions which may occur in earlier or later life. The specific reaction to simple irritants, giving rise to strumous inflammation of lymphatic glands, which is common in youth, may sometimes remain in the adult, and extend into advanced life; and the consequences of infections, as by scarlatina, or syphilis, or of irritation by gout, may be, and probably are, greatly modified by this tendency, giving rise to varieties in the several manifestations of these diseases. Thus, gout appears to have a tendency to linger in strumous subjects, and in its articular form to be attended with greater effusion than is commonly witnessed, while chronic tubal nephritis in such subjects is apt to be more than usually grave and uninfluenced by treatment. In short, the strumous diathesis is a bad one for the incidence of most morbid conditions.

Guided by our present knowledge of this condition,

and of its relation to tuberculosis, we have at once suggested to us the supreme value of preventive methods in the management of strumous persons, and a *methodus medendi* for those of them who may become tainted with tuberculosis—to wit, an aseptic environment, good food, tonic remedies, and the free removal by the Surgeon of disordered lymphatic glands. The beneficial influence of sea air has long been recognised in these cases, and it led over a century ago to the institution of an admirable Hospital which, though its need and usefulness are as great as formerly, has somehow been suffered to languish for want of public appreciation and support. There is still a great need for small seaside hospitals to supply the requirements of poor patients, whether scrofulous or not, from this metropolis, and a grand sphere of beneficence in this direction lies open to wealthy persons who will found and endow such institutions.

Amongst the secrets wrested from Nature in recent times is the discovery of the Röntgen rays, which have already proved of great practical use to Surgeons for the detection in certain parts of foreign bodies, and the exact determination of injuries to the skeleton. To the Physician, these scrutinising rays have, as yet, yielded little new information. Some varieties of renal calculi may sometimes be detected by them, but they

afford no evidence of biliary concretions. We may however, obtain indications of solid tumours and aneurysms, and of enlargement of certain viscera.

The therapeutic influence of these rays, if any exists, is, as yet, not determined. According to Rieder, of Munich, rays emitted from "hard," *i.e.*, high vacuum, tubes, kill bacteria. Such rays have the highest penetrating power. With the assistance of my colleague, Dr. Lewis Jones, I have examined radio-scopically the lungs of several patients with tuberculous disease in various stages. The physical signs were well marked and readily detectible by ordinary methods of examination. The consolidated portions of the lungs gave no further evidence of their condition than a somewhat dark opacity, in mottled tracts, as compared with the luminous clearness of the unaffected parts.

Pleural effusions and pneumothorax are detectible, also pneumonic consolidations, and even early and limited areas of tuberculous deposit. In a recent report on this subject, MM. Bouchard and Claude, of Paris,* declare that cavities can readily be discovered, and even enlargements of bronchial lymph-glands.†

* Congress for the study of Tuberculosis. Paris. July, 1898.

† These observations have been quite lately confirmed by Doctor Hugh Walsham at St. Bartholomew's Hospital.

The free movements of the diaphragm are well displayed, and are worthy of study, since it is found that this structure is lowered on the affected side in cases of consolidation of the apex of the lung, and rendered dense and immovable in diaphragmatic pleurisy. The most startling revelation by means of the X-rays is that of M. Kelsch, who declares that he discovered the existence of pulmonary tuberculosis in fifty-one out of a hundred and twenty-four military patients who presented none of the ordinary signs of the malady. With respect to these observations, I will only say that I desire more detailed evidence and, with it, confirmation.

It may be affirmed that radioscopy and skiagraphs tell but little to the Physician that could not be ascertained by other methods of physical examination, but they certainly afford additional means for accurate clinical determination. Thus, in a case of mitral valvular disease with great cardiac hypertrophy, which I examined, the melon-shaped outline of the heart could be seen to bulk more largely in the thorax than the physical signs alone led one to believe. With improved apparatus we may come to better results than any yet attained, and, indeed, there may be other secrets in the domain of electrical science awaiting diligent research, of which perchance some may

serve to revolutionise our present methods of clinical investigation.*

Recent researches have been fruitful in respect of improved methods of vaccination, and of securing the absolute purity of vaccine lymph. Our Milroy Lecturer of this year,† to whom is due the credit of the work, has made us fully aware of the steps by which the bacteriology of both human and calf lymph has been studied. The result has been the introduction of glycerinated calf vaccine lymph which now meets every requirement, whether demanded by the scientific bacteriologist, the medical practitioner, or the reasonable portion of the public. This discovery appears to me to open up new fields of study. The influence of glycerine in destroying some of the most noxious microbes which may gain access to ordinary vaccine lymph in various ways, is very noteworthy and important, and I cannot but imagine that this agent may yet be found of more extended usefulness as a bactericide. It is surely significant that some of the most virulent germs, including those productive

* "Nor do I doubt but that many things still lie hidden in Democritus's well, that are destined to be drawn up into day by the ceaseless industry of coming ages."—*Letter to John Daniel Horst, Principal Physician of Hesse-Darmstadt.* Harvey. 1654.

† Doctor Sydney Monckton Copeman, a Member of this College.

of tuberculosis and suppuration, should they contaminate vaccine lymph, can be completely disposed of by this simple medium within three or four weeks.

We might have anticipated that such a discovery would have promptly disposed of most of the objections raised against the universal and compulsory practice of vaccination in England, did we not know that ignorance and prejudice, fostered by misrepresentation, and stimulated by paid agitation, require a strong hand for their repression. I speak advisedly of *repression* in a matter so vital as this, for there are varieties of ignorance and prejudice, some of which may safely be left for time and education to disperse. But here we are in face of a terrible danger, with accredited succour at hand, and the *mens medica* has no hesitation as to the course to follow.

And, Sir, what I am now about to say I venture to say in my private capacity, not committing the College to the opinion, although I know that it is shared by the majority of those whom I have the honour of addressing. I refer to the recent Parliamentary treatment of the Vaccination Bill, and I make bold to stigmatise it as a piece of panic legislation, a lamentable concession to ignorance, fraught with serious peril to the whole community, and unworthy of the duty and dignity of any British Government. By many of us,

the Report of the Royal Commission on Vaccination was considered by no means too strong, but, alas! it has been left to the countrymen of Edward Jenner, by sanction of what has well been termed "a tremendous experiment," to place England, hitherto foremost in State Medicine, in a humiliating position before the world. Let us try and imagine today the contempt our Harvey would have felt for the men who so treated the revelations of truth sought out from Nature.

Of Harvey's skill as a practical Physician we have little actual knowledge. This is mainly owing to the loss, by robbery and destruction, of his papers, including, what must undoubtedly have been a storehouse of wisdom, his "Medical Observations" to which he occasionally makes allusion in various treatises. Our art is, not improbably, the poorer today for this untoward circumstance.

We know that his "therapeutique way" did not commend itself to the practitioners of his time, but we may fairly believe that his natural powers of insight, quickened by constant and accurate biological studies, suggested to him methods of treatment which his contemporaries, still held in the bondage of dogma and routine, failed to comprehend.

We may, however, form an opinion as to his clinical sagacity from the following sentence taken from his second "Disquisition on the Circulation of the Blood," written to Jean Riolan:—"How speedily is pain relieved or removed by the detraction of blood, the application of cupping-glasses, or the compression of the artery which leads to a part? It sometimes vanishes as if by magic." And then he proceeds. "But these are topics that I must refer to my 'Medical Observations' where they will be found exposed at length and explained." These facts are assuredly as true today as they were two hundred and fifty years ago, but I will venture to say that they are not adequately recognised in practice at the present time, and that, in consequence, some of our patients do not receive the prompt measures of relief which are available for them. The fierce controversies that have raged in this century on the subject of blood-letting have had for their result a serious neglect of its appropriate application. Guided by modern physiology with its teaching in regard to the physics of the circulation, no less than by our larger knowledge of morbid conditions, we have now a full warrant for the judicious employment of a practice which has always commanded the assent of the best clinical observers.

I have barely alluded to the scientific achievements of Harvey's long life. The full scope of his original discoveries is possibly even now imperfectly realised by those who connect his name merely with the doctrine of the circulation of the blood.* Yet this discovery was but the final exposition of a fact, only disclosed to him after assiduous anatomical labour, directed and pondered over by his surpassing intellect. The steps which led to it slowly elicited not only the mechanism of the circular course of the blood, but the important fact, previously unknown, that this fluid was uniformly diffused and common to all the blood-vessels of the body.† Harvey, moreover, was the first to interpret correctly the physiology of the heart. His

* "The old humoral pathology has lost its roots since Harvey showed that the blood is a circulating fluid, and not a parenchymatous juice," Prof. Virchow. (*Address delivered at the Tercentenary Festival of the University of Edinburgh.*) 1884.

† I remember that my esteemed teacher, Professor Goodsir, of Edinburgh, was wont to describe the blood as an organ. His successor, Sir William Turner, has confirmed my recollection, and writes to me as follows:—"Goodsir regarded the blood as an organ, and the blood corpuscles as the tissues of the organ. His mind was so full of the importance of the cell as a force in nutrition that to him the collective cells of the blood represented an organ, although they were not fixed in their place, but moved with the blood stream. His conception was, I believe, a true one."

great work on "Animal Generation," of which he was so diffident, and which was, as it were, dragged from him by his admiring friend, Sir George Ent, for the purpose of publication, would by itself have raised him to the first rank of biologists, although, as Willis remarks, to complete and perfect such a task as this was impossible, even for Harvey, with the means at his disposal in the seventeenth century.

His minor treatises show, equally with his greater ones, the same originality and intellectual power.

But I will not dilate on these topics. They have been often discussed before us here. I have preferred on this occasion rather to present to you the pre-eminent qualities of the mind and character of Harvey, and to indicate the wholesome lessons which they afford for us. Harvey, himself, best summed up his great characteristic and guiding principle in a concise sentence that might even now be fitly inscribed on his sarcophagus, and it is this:—"I avow myself the partisan of truth alone." That was the great moral of his life—truth eternal, ever to be sought for, to be held, and to be passed on. Let us ask ourselves if the Orator of 1998 will be able to say that such was our ideal in this College at the close of the preceding century? We may fairly hope that he will not hesitate so to speak of us.

In my belief, nothing will better tend to foster and maintain such a standard amongst us than the disclosure year by year in this place of the character and works of our immortal Harvey.

To have had him, to be summoned regularly to peer into his great mind, to learn his methods, to be counselled by his wisdom, and to participate in the benefactions he so affectionately designed for us, constitutes indeed a high responsibility of which we must ever feel sensible in this his beloved College.

I have now, lastly, in accordance with Harvey's direction "to exhort the Fellows and Members, for the honour of the profession to continue in mutual love and affection among themselves, without which neither the dignity of the College can be maintained, nor yet particular men receive that benefit by their admission into the College which they might expect, ever remembering that '*concordia res parvae crescunt, discordia magnae dilabuntur.*'"

According to Willis, "every act of Harvey's public life that has come down to us is marked not merely by propriety, but by grace." I venture to think that we in this College are well knit together in mutual regard

and sympathy, and thus maintain in these respects what Harvey desired should ever exist here. The concord we enjoy truly preserves our dignity, for it adds weight to our deliberations and our efforts. It is a good deal the fashion in these days to deride dignity and its symbols, but wise men, in all times, have realised the risk which the loss of them entails, and have had cause to learn that when the symbol is dropped, the reality also is only too apt to disappear.

But our life work as the Physicians of England is not done here. Our duties take us to serious and responsible ministrations to all classes of our countrymen. Our various positions demand that, with perfect freedom and independence, we bring our best knowledge and influence to bear on all human interests.

May we indeed be careful to carry with us in all the relations of life, professional and otherwise, the tone and bearing which are demanded of all who belong to this College !

May we strive to be like-minded with those whose memory we have just praised, and, not least, with the simple, unselfish, Christian gentleman before whose life work and beautiful character we have once more bent today in solemn admiration !

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